IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	:	Attorney Docket No. 2006_1151A
Tadashi MAEDA et al.	:	**Confirmation No. 1659**
Serial No. 10/586,598	:	Group Art Unit 1783
Filed July 20, 2006	:	Examiner Megha S. Mehta
FLUX FOR SOLDERING AND SOLDERING PROCESS	:	**Mail Stop: APPEAL BRIEFS-PATENTS**

APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The following is Appellants' Brief, submitted under the provisions of 37 CFR § 41.37. Pursuant to the provisions of 37 CFR § 41.20, this brief is submitted with the required fee of $620.00.

The USPTO is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16, 1.17, and 1.492, which may be required by this paper to Deposit Account No. 23-0975.

I. REAL PARTY IN INTEREST

The real party in interest is PANASONIC CORPORATION, the assignee of record, as recorded at Reel 021897 and Frame 0653 on November 24, 2008.

II. RELATED APPEALS AND INTERFERENCES

There are no related prior or pending appeals, interferences or judicial proceedings known to Appellants, Appellants' legal representative, or assignees, which may be related to, directly affect or be directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

The status of the claims is as follows.

Pending Claims: 16-39

Withdrawn Claims: 16-26

Rejected Claims: 27-39

Cancelled Claims: 1-15

Appealed Claims: 27-39

A complete copy of all of the pending claims is provided in the attached Claims Appendix.

IV. STATUS OF AMENDMENTS

An Amendment was filed on January 4, 2010, amending claims 27 and 33, and adding new claim 39. Thus, the claims are those set forth in the Amendment filed January 4, 2010.

V. SUMMARY OF CLAIMED SUBJECT MATTER

A concise explanation of the subject matter defined in the independent and dependent claims involved in the appeal is presented below.

A. Claims 27-32

Claim 27

Independent claim 27 is directed to a soldering process with which a first electrode having a solder portion thereon is soldered to a second electrode, wherein the process comprises:

a first step of supplying a flux comprising a liquid base material comprising a resin component which is dissolved in a solvent, an active component which removes an oxide, and a metal powder made of a metal which has a melting point higher than that of a solder material which forms the solder portion, wherein the metal powder is in the form of scales, and the flux contains the metal powder in an amount in the range between 1% and 9% by volume based on a volume of the flux, to at least one of the solder portion and the second electrode,

a second step of aligning the first electrode with the second electrode so as to locate the flux between the solder portion and the second electrode,

a third step of heating so as to melt the solder portion, so that a molten solder material from the solder portion comes in contact with the second electrode, and

a fourth step of solidifying the molten solder material after the third step.

Support for claim 27 can be found on page 4, lines 9-22; page 5, line 9 to page 6, line 6; page 6, line 19 to page 7, line 3; page 15, lines 15-25; and page 23, line 17 to page 24, line 5 of Appellants' specification.

Claim 28

Dependent claim 28 is directed to the soldering process according to claim 27, wherein the solder portion is a bump which is formed on the first electrode. Support for claim 28 can be found on page 8, line 19 and page 10, line 20 to page 11, line 3 of Appellants' specification.

Claim 29

Dependent claim 29 is directed to the soldering process according to claim 27, wherein the first electrode is an external connection electrode of an electronic part. Support for claim 29

can be found on page 8, line 18; page 9, line 21 to page 10, line 1; and page 33, lines 17-20 of Appellants' specification.

Claim 30

Dependent claim 30 is directed to the soldering process according to claim 27, wherein the second electrode is an electrode of a circuit formed on a substrate. Support for claim 30 can be found on page 8, line 14; and page 9, line 21 to page 10, line 1 of Appellants' specification.

Claim 31

Dependent claim 31 is directed to the soldering process according to claim 27, wherein supplying the flux is carried out in a flux application step wherein a film of the flux is formed, and then a lower end portion of the solder portion is made in contact with the film. Support for claim 31 can be found on page 8, line 19 and page 12, lines 9-20 of Appellants' specification.

Claim 32

Dependent claim 32 is directed to the soldering process according to claim 27, wherein solidifying the molten solder material is carried out in a cooling step wherein the molten solder material is cooled. Support for claim 32 can be found on page 25, lines 10-17 of Appellants' specification.

B. Claims 33-39

Claim 33

Independent claim 33 is directed to a soldering process with which a first electrode having a solder portion thereon is soldered to a second electrode, wherein the process comprises:

a first step of supplying a flux comprising a liquid base material comprising a resin component which is dissolved in a solvent, an active component which removes an oxide, and a metal powder in the form of scales of which constituting elements are comprised of cores and coatings around the cores, wherein the coatings are made of a metal which has a melting point higher than that of a solder material which forms the solder portion, and the flux contains the metal powder in an amount in the range between 1% and 9% by volume based on a volume of the flux, to at least one of the solder portion and the second electrode,

a second step of aligning the first electrode with the second electrode so as to locate the flux between the solder portion and the second electrode,

a third step of heating so as to melt the solder portion, so that a molten solder material from the solder portion comes in contact with the second electrode, and

a fourth step of solidifying the molten solder material after the third step.

Support for claim 33 can be found on page 4, lines 9-22; page 5, line 9 to page 6, line 6; page 6, line 19 to page 7, line 3; page 15, lines 15 to page 16, line 18; and page 23, line 17 to page 24, line 5 of Appellants' specification.

Claim 34

Dependent claim 34 is directed to the soldering process according to claim 33, wherein the solder portion is a bump which is formed on the first electrode. Support for claim 34 can be found on page 8, line 19 and page 10, line 20 to page 11, line 3 of Appellants' specification.

Claim 35

Dependent claim 35 is directed to the soldering process according to claim 33, wherein the first electrode is an external connection electrode of an electronic part. Support for claim 35 can be found on page 8, line 18; page 9, line 21 to page 10, line 1; and page 33, lines 17-20 of Appellants' specification.

Claim 36

Dependent claim 36 is directed to the soldering process according to claim 33, wherein the second electrode is an electrode of a circuit formed on a substrate. Support for claim 36 can be found on page 8, line 14 and page 9, line 21 to page 10, line 1 of Appellants' specification.

Claim 37

Dependent claim 37 is directed to the soldering process according to claim 33, wherein supplying the flux is carried out in a flux application step wherein a film of the flux is formed, and then a lower end portion of the solder portion is made in contact with the film. Support for claim 37 can be found on page 8, line 19 and page 12, lines 9-20 of Appellants' specification.

Claim 38

Dependent claim 38 is directed to the soldering process according to claim 33, wherein solidifying the molten solder material is carried out in a cooling step wherein the molten solder material is cooled. Support for claim 38 can be found on page 25, lines 10-17 of Appellants' specification.

Claim 39

Dependent claim 39 is directed to the soldering process according to claim 33, wherein the cores are made of tin and the coatings are made of silver. Support for claim 39 can be found on page 16, lines 1-18 of Appellants' specification.

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 27-39 are unpatentable under 35 U.S.C. § 103(a) over Maeda et al. (U.S. Patent No. 6,189,771) in view of Imamura et al. (U.S. Patent Application Publication No. 2002/0185309) and further in view of Mei (U.S. Patent No. 6,680,128) in view of Kang et al. (U.S. Patent No. 5,837,119).

VII. ARGUMENT

The rejection of claims 27-39 under 35 U.S.C. § 103(a) as being unpatentable over Maeda et al. (US 6,189,771) in view of Imamura et al. (US 2002/0185309) and further in view of Mei (U.S. Patent No. 6,680,128) in view of Kang et al. (U.S. Patent No. 5,837,119) is respectfully traversed.

A. Independent Claims 27 and 33

The Examiner has improperly combined the teachings of the cited references to arrive at the claimed invention.

Claim 27 is directed to a soldering process comprising "a first step of supplying a flux comprising a liquid base material comprising a resin component which is dissolved in a solvent, an active component which removes an oxide, and **a metal powder made of a metal which has a melting point higher than that of a solder material which forms the solder portion, wherein the metal powder is in the form of scales**, and the flux contains the metal powder in an amount in the range between 1% and 9% by volume based on a volume of the flux, to at least one of the solder portion and the second electrode". **Thus, the process of claim 27 comprises a first step of supplying a flux that comprises a metal powder in the form of scales.**

Claim 33 is directed to a soldering process comprising "a first step of supplying a flux comprising a liquid base material comprising a resin component which is dissolved in a solvent, an active component which removes an oxide, and **a metal powder in the form of scales of which constituting elements are comprised of cores and coatings around the cores**, wherein the coatings are made of a metal which has a melting point higher than that of a solder material which forms the solder portion, and the flux contains the metal powder in an amount in the range between 1% and 9% by volume based on a volume of the flux, to at least one of the solder portion and the second electrode". **Accordingly, the process of claim 33 comprises a first step of supplying a flux that contains a metal powder in the form of scales of which constituting elements are comprised of cores and coatings around the cores.**

Claims 27 and 33 each further recite the same additional steps of, "a second step of aligning the first electrode with the second electrode so as to locate the flux between the solder portion and the second electrode, a third step of **heating so as to melt the solder portion**, so that a molten solder material from the solder portion comes in contact with the second electrode, and **a fourth step of solidifying the molten solder material after the third step**".

The Examiner has admitted that Maeda et al. do not disclose the soldering processes of claims 27 and 33, because the reference fails to disclose the fourth claimed step after the third claimed step, and the reference fails to disclose a flux according to the first step (see Office Action of October 6, 2011, page 3, lines 19-23, and page 5, lines 13-14).

The Examiner has asserted that it would have been obvious to include the flux of Imamura et al. in the process of Maeda et al., because one may vary the flux composition based on the desired final result and the effect of the flux on the product being made, **but has admitted that neither reference discloses a flux comprising a metal powder in the form of scales**, as recited in claims 27 and 33 (see Office Action, page 4, lines 5-9).

However, the Examiner has asserted that it would have been obvious to include the flake-shaped powders of Kang et al. in the solder paste of Mei, because it produces a better electrical connection with a minimum amount of filler material, and to combine the paste with Maeda et al. and Imamura et al. (see Office Action, page 4, lines 9-18, and page 6, lines 10-15).

Under MPEP 2143.01.VI., "[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious". The Examiner has improperly combined the teachings of the cited references to arrive at the claimed invention, because the Examiner's combination changes the principal operation of Mei's composition.

Mei discloses a solder composition comprising a solder material and a coating disposed about the solder material. Mei's solder composition is **melted as a whole**, including the silver coated tin alloy particles (see Mei, col. 3, lines 11-13 and col. 4, lines 10-12). In the reference, there are no more "particles" in the finally formed connection, because the whole (entire) composition melts and solidifies. A person of ordinary skill in the art would have had no reason or rationale to consider the shape of the (melted) particles to have anything to do with the electrical conduction upon the formation of the connection in view of the teachings of Mei.

The teaching of "better electrical conduction" in Kang et al. is only applicable to the connection in which there are particles throughout the solder mass, even after the formation of the connection. Because Mei teaches to melt the solder composition as a whole, there are no more particles left in Mei's composition and the shape of the (non-existent) particles is completely irrelevant. Thus, the teaching of Kang et al. that flake-shaped particles provide better

electrical conduction cannot be applied to Mei, in which no particles remain in the finally formed connection, to arrive at the presently claimed invention, because Mei does not have any metal particles that can be flake-shaped.

The Examiner has improperly modified Mei to include "flake-shaped" particles in view of Kang et al. to arrive at the claimed invention having metal in the form of "scales", but Mei cannot have flake-shaped particles because there are no more particles in the molten solder mass of Mei. Therefore, the modification of Mei to have flake-shaped particles changes the principle operation of Mei of the solder composition being melted as a whole. Accordingly, the Examiner has failed to make a *prima facie* case of obviousness.

In response to Appellants' arguments above, the Examiner has taken the position that the solder is melted and cooled to become solid again after a reflow process, and in the reflow process the metal particles nucleate and grow until all of the solder has solidified. Thus, after the solidification process, the particles in the solder have returned, and the claims do not require that the particles in the solder mass after solidification are the same particles that were in the mixture before melting of the solder (see Office Action, page 12, lines 6-13).

However, claim 27 recites "a metal powder made of a metal which has **a melting point higher than that of a solder material** which forms the solder portion", and claim 33 recites "the coatings are made of a metal which has **a melting point higher than that of a solder material** which forms the solder portion". In addition, both clams recite "a third step of heating so as to melt the solder portion, so that a molten solder material from the solder portion comes in contact with the second electrode", and "a fourth step of solidifying the molten material after the third step".

Both claims 27 and 33 require the metal to have **a melting point higher than the solder material**. A person of ordinary skill in the art would clearly recognize that **the metal powder does not melt** during the third step of heating to form a molten solder material, because the melting point of the metal is "higher than that of a solder material". Only the "solder portion" melts in the third step, and the metal powder in the form of scales does not melt.

Furthermore, because the metal powder does not melt, one skilled in the art would recognize that claims 27 and 33 require the metal powder to be present in the solidified molten material in the form of scales in the claimed processes. **Accordingly, the claims, as written, require the metal powder to be in a particular form (scales) in all four steps of each claim.**

Moreover, in Mei, as acknowledged by the Examiner, in the reflow process the metal particles nucleate and grow until all of the solder has solidified. Once the solder composition has solidified there is no reason to have flake-shaped particles, as taught by Kang et al. Therefore, the Examiner has improperly combined Mei with Kang et al. based solely upon Appellants' own claims as a roadmap, which require the metal powder to be in the form of scales. This analysis is clearly based upon improper hindsight reasoning.

Therefore, the modification of Mei to have flake-shaped particles in view of Kang et al. changes the principle operation of Mei of the solder composition being melted as a whole. As a result, the Examiner has improperly combined the teachings of Maeda et al. and Imamura et al. with Mei and Kang et al. to arrive at the claimed invention. Accordingly, the Examiner has failed to make a *prima facie* case of obviousness.

In view of the foregoing, a person of ordinary skill in the art would recognize that claims 27 and 33 would not have been obvious over the cited references.

B. Dependent Claims 28 and 34

Dependent claim 28 is directed to the soldering process according to claim 27, wherein the solder portion is a bump which is formed on the first electrode.

Similarly, dependent claim 34 is directed to the soldering process according to claim 33, wherein the solder portion is a bump which is formed on the first electrode.

A person of ordinary skill in the art would not have arrived at the soldering process of either claim 28 or 34 with any reasonable expectation of success, because the modification of Mei to have flake-shaped particles in view of Kang et al. changes the principle operation of Mei of the solder composition being melted as a whole. As a result, the Examiner has improperly combined the teachings of Maeda et al. and Imamura et al. with Mei and Kang et al. to arrive at the claimed invention.

Therefore, claims 28 and 34 would not have been obvious over the references.

C. Dependent Claims 29 and 35

Dependent claim 29 is directed to the soldering process according to claim 27, wherein the first electrode is an external connection electrode of an electronic part. Dependent claim 35 is directed to the soldering process according to claim 33, wherein the first electrode is an external connection electrode of an electronic part.

A person of ordinary skill in the art would not have arrived at the soldering process of either claim 29 or 35 with any reasonable expectation of success, because the modification of Mei to have flake-shaped particles in view of Kang et al. changes the principle operation of Mei of the solder composition being melted as a whole. As a result, the Examiner has improperly combined the teachings of Maeda et al. and Imamura et al. with Mei and Kang et al. to arrive at the claimed invention.

Therefore, claims 29 and 35 would not have been obvious over the references.

D. Dependent Claims 30 and 36

Dependent claim 30 is directed to the soldering process according to claim 27, wherein the second electrode is an electrode of a circuit formed on a substrate. Dependent claim 36 is directed to the soldering process according to claim 33, wherein the second electrode is an electrode of a circuit formed on a substrate.

A person of ordinary skill in the art would not have arrived at the soldering process of either claim 30 or 36 with any reasonable expectation of success, because the modification of Mei to have flake-shaped particles in view of Kang et al. changes the principle operation of Mei of the solder composition being melted as a whole. As a result, the Examiner has improperly combined the teachings of Maeda et al. and Imamura et al. with Mei and Kang et al. to arrive at the claimed invention.

Therefore, claims 30 and 36 would not have been obvious over the references.

E. Dependent Claims 31 and 37

Dependent claim 31 is directed to the soldering process according to claim 27, wherein supplying the flux is carried out in a flux application step wherein a film of the flux is formed, and then a lower end portion of the solder portion is made in contact with the film.

Dependent claim 37 is directed to the soldering process according to claim 33, wherein supplying the flux is carried out in a flux application step wherein a film of the flux is formed, and then a lower end portion of the solder portion is made in contact with the film.

A person of ordinary skill in the art would not have arrived at the soldering process of either claim 31 or 37 with any reasonable expectation of success, because the modification of Mei to have flake-shaped particles in view of Kang et al. changes the principle operation of Mei of the solder composition being melted as a whole. As a result, the Examiner has improperly combined the teachings of Maeda et al. and Imamura et al. with Mei and Kang et al. to arrive at

the claimed invention.

Therefore, claims 31 and 37 would not have been obvious over the references.

F. Dependent Claims 32 and 38

Dependent claim 32 is directed to the soldering process according to claim 27, wherein solidifying the molten solder material is carried out in a cooling step wherein the molten solder material is cooled.

Dependent claim 38 is directed to the soldering process according to claim 33, wherein solidifying the molten solder material is carried out in a cooling step wherein the molten solder material is cooled.

A person of ordinary skill in the art would not have arrived at the soldering process of either claim 32 or 38 with any reasonable expectation of success, because the modification of Mei to have flake-shaped particles in view of Kang et al. changes the principle operation of Mei of the solder composition being melted as a whole. As a result, the Examiner has improperly combined the teachings of Maeda et al. and Imamura et al. with Mei and Kang et al. to arrive at the claimed invention.

Therefore, claims 32 and 38 would not have been obvious over the references.

G. Dependent Claim 39

Dependent claim 39 is directed to the soldering process according to claim 33, wherein the cores are made of tin and the coatings are made of silver. Accordingly, the claimed process explicitly states that the cores and coatings are made from different materials.

A person of ordinary skill in the art would not have arrived at the soldering process of claim 39 with any reasonable expectation of success, because the modification of Mei to have flake-shaped particles in view of Kang et al. changes the principle operation of Mei of the solder composition being melted as a whole. As a result, the Examiner has improperly combined the teachings of Maeda et al. and Imamura et al. with Mei and Kang et al. to arrive at the claimed invention.

Therefore, claim 39 would not have been obvious over the references.

In view of the foregoing, claims 21-39 would not have been obvious over the references. Accordingly, reversal of the final rejection is respectfully requested.

VIII. CONCLUSION

For the foregoing reasons, claims 27-39 would not have been obvious over Maeda et al. in view of Imamura et al., and further in view of Mei and Kang et al. Accordingly, reversal of the final rejection is respectfully requested.

Attached hereto are a Claims Appendix, an Evidence Appendix and a Related Proceedings Appendix.

The brief is submitted with the required fee.

Respectfully submitted,

Tadashi MAEDA et al.

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IX. CLAIMS APPENDIX

1-15. (Canceled)

16. (Withdrawn) A flux for soldering which is placed between a solder portion formed on a first electrode and a second electrode when the first electrode is soldered to the second electrode, wherein the flux comprises:

a liquid base material comprising a resin component which is dissolved in a solvent,

an active component which removes an oxide, and

a metal powder made of a metal of which melting point is higher than that of a solder material which forms the solder portion, and

the flux contains the metal powder in an amount in the range between 1 % and 9 % by volume based on a volume of the flux.

17. (Withdrawn) The flux according to claim 16 wherein the metal which forms the metal powder is at least one selected from the group consisting of gold, silver and palladium each having a purity of not smaller than 90 %.

18. (Withdrawn) The flux according to claim 16 wherein the metal which forms the metal powder is unlikely to form a natural oxide film on a surface of the metal powder.

19. (Withdrawn) The flux according to claim 16 wherein the metal powder is in the form of thin pieces, scales or dendrites.

20. (Withdrawn) The flux according to claim 16 wherein the flux contains a rosin or a modified rosin as the resin component and the active component.

21. (Withdrawn) The flux according to claim 20 wherein the flux contains, in addition to the active component derived from the rosin or the modified rosin, other active component.

22. (Withdrawn) A flux for soldering which is placed between a solder portion formed on a first electrode and a second electrode when the first electrode is soldered to the second electrode, wherein the flux comprises:

a liquid base material comprising a resin component which is dissolved in a solvent,

an active component which removes an oxide, and

a metal powder of which constituting elements are comprised of cores and coatings around the cores,

the coatings are made of a metal of which melting point is higher than that of a solder material which forms the solder portion, and

the flux contains the metal powder in an amount in the range between 1 % and 9 % by volume based on a volume of the flux.

23. (Withdrawn) The flux according to claim 22 wherein the metal which forms the coating of the metal powder element is at least one selected from the group consisting of gold, silver and palladium each having a purity of not smaller than 90 %.

24. (Withdrawn) The flux according to claim 22 wherein the metal forms the coating of the metal powder element is unlikely to form a natural oxide film on a surface of the metal powder.

25. (Withdrawn) The flux according to claim 22 wherein the flux contains a rosin or a modified rosin as the resin component and the active component.

26. (Withdrawn) The flux according to claim 25 wherein the flux contains, in addition to the active component derived from the rosin or the modified rosin, other active component.

27. (Appealed) A soldering process with which a first electrode having a solder portion thereon is soldered to a second electrode, wherein the process comprises:

a first step of supplying a flux comprising a liquid base material comprising a resin component which is dissolved in a solvent, an active component which removes an oxide, and a metal powder made of a metal which has a melting point higher than that of a solder material which forms the solder portion, wherein the metal powder is in the form of scales, and the flux contains the metal powder in an amount in the range between 1% and 9% by volume based on a volume of the flux, to at least one of the solder portion and the second electrode,

a second step of aligning the first electrode with the second electrode so as to locate the flux between the solder portion and the second electrode,

a third step of heating so as to melt the solder portion, so that a molten solder material from the solder portion comes in contact with the second electrode, and

a fourth step of solidifying the molten solder material after the third step.

28. (Appealed) The soldering process according to claim 27 wherein the solder portion is a bump which is formed on the first electrode.

29. (Appealed) The soldering process according to claim 27 wherein the first electrode is an external connection electrode of an electronic part.

30. (Appealed) The soldering process according to claim 27 wherein the second electrode is an electrode of a circuit formed on a substrate.

31. (Appealed) The soldering process according to claim 27 wherein supplying the flux is carried out in a flux application step wherein a film of the flux is formed, and then a lower end portion of the solder portion is made in contact with the film.

32. (Appealed) The soldering process according to claim 27 wherein solidifying the molten solder material is carried out in a cooling step wherein the molten solder material is cooled.

33. (Appealed) A soldering process with which a first electrode having a solder portion thereon is soldered to a second electrode, wherein the process comprises:

a first step of supplying a flux comprising a liquid base material comprising a resin component which is dissolved in a solvent, an active component which removes an oxide, and a metal powder in the form of scales of which constituting elements are comprised of cores and coatings around the cores, wherein the coatings are made of a metal which has a melting point higher than that of a solder material which forms the solder portion, and the flux contains the metal powder in an amount in the range between 1% and 9% by volume based on a volume of the flux, to at least one of the solder portion and the second electrode,

a second step of aligning the first electrode with the second electrode so as to locate the flux between the solder portion and the second electrode,

a third step of heating so as to melt the solder portion, so that a molten solder material from the solder portion comes in contact with the second electrode, and

a fourth step of solidifying the molten solder material after the third step.

34. (Appealed) The soldering process according to claim 33 wherein the solder portion is a bump which is formed on the first electrode.

35. (Appealed) The soldering process according to claim 33 wherein the first electrode is an external connection electrode of an electronic part.

36. (Appealed) The soldering process according to claim 33 wherein the second electrode is an electrode of a circuit formed on a substrate.

37. (Appealed) The soldering process according to claim 33 wherein supplying the flux is carried out in a flux application step wherein a film of the flux is formed, and then a lower end portion of the solder portion is made in contact with the film.

38. (Appealed) The soldering process according to claim 33 wherein solidifying the molten solder material is carried out in a cooling step wherein the molten solder material is cooled.

39. (Appealed) The soldering process according to claim 33 wherein the cores are made of tin and the coatings are made of silver.

X. EVIDENCE APPENDIX

None

XI. RELATED PROCEEDINGS APPENDIX

None